

U.S. Appln. No. 09/969,803  
Amendment Dated October 21, 2004  
Reply to Office Action of July 22, 2004  
Docket No. 6169-161

IBM Docket No.: BOC9-2000-0022

**Amendments to Claims:**

This listing of claims will replace all prior versions and listings of claims in the instant application:

**Listing of Claims:**

1. (Currently amended) A statistical parsing method comprising:  
applying [[a]] at least one statistical natural language understanding (NLU) model to text input for identifying substrings within said text input, said statistical NLU model [[being]] belonging to a group of one or more statistical NLU models included within a statistical parser and selected for identifying a particular class of substring; and,  
examining said each identified substring using an inventory of queries corresponding to said selected statistical NLU model.
2. (Currently amended) The method of claim 1, further comprising iteratively applying different selected [[reusable]] statistical NLU models to said text input.
3. (Original) The method of claim 1, wherein said step of applying a statistical NLU model further includes comparing a probability value, which corresponds to said identified substrings, to a threshold probability value, which corresponds to said selected statistical NLU model.
4. (Currently amended) The method of claim 1, wherein said selected [[reusable]] statistical NLU model comprises a maximum entropy direct channel model, a source-channel model trained by the expectation maximization algorithm, a n-gram model, a statistical parser, or a word spotter.

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5. (Original) The method of claim 1, wherein said step of applying a statistical NLU model further comprises identifying a parse tree which corresponds to each said identified substring.

6. (Original) The method of claim 1, said inventory of queries having a hierarchy determined during training of an NLU system.

7. (Currently amended) A maximum entropy parsing method comprising:  
applying [[a]] at least one statistical natural language understanding (NLU) model to text input for identifying substrings within said text input, said statistical NLU model [[being]] belonging to a group of one or more statistical NLU models included within a maximum entropy parser and selected for identifying a particular class of substring; and,  
examining each said possible substring using one or more features corresponding to said selected statistical NLU model.

8. (Original) The method of claim 7, further comprising iteratively applying different selected statistical NLU models to said text input.

9. (Original) The method of claim 7, wherein said step of applying a statistical NLU model further includes comparing a probability value, which corresponds to said identified substrings, to a threshold probability value, which corresponds to said selected statistical NLU model.

10. (Original) The method of claim 7, wherein said selected statistical NLU model comprises a maximum entropy direct channel model, a source-channel model trained by

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the expectation maximization algorithm, an n-gram model, a statistical parser, or a word spotter.

11. (Original) The method of claim 7, wherein said step of applying a statistical NLU model further comprises identifying a parse tree which corresponds to each said identified substring.

12. (Original) The method of claim 7, said features having weights determined during training of an NLU system.

13. (Currently amended) A statistical parsing system comprising:  
a text buffer for storing text input;  
at least one statistical NLU model included within a statistical parser for recognizing a substring within said text input; and,  
an inventory of queries wherein each query within said inventory of queries corresponds to one of said at least one [[reusable]] statistical NLU models.

14. (Original) The system of claim 13, wherein said statistical NLU model includes a threshold probability value for comparing each said recognized substring to said threshold probability value.

15. (Original) The system of claim 13, wherein said statistical NLU model comprises a maximum entropy direct channel model, a source-channel model trained by the expectation maximization algorithm, an n-gram model, a statistical parser, or a word spotter.

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16. (Original) The system of claim 13, wherein said statistical NLU model can identify a parse tree corresponding to each said recognized substring within said text input.

17. (Original) The system of claim 13, said inventory of queries having a hierarchy determined during training of an NLU system.

18. (Currently amended) A statistical parsing system comprising:  
a text buffer for storing text input;  
at least one [[reusable]] statistical NLU model embedded within a statistical parser for recognizing a substring within said text input; and,  
one or more features wherein each feature corresponds to one of said at least one [[reusable]] statistical NLU models.

19. (Original) The system of claim 18, wherein said statistical NLU model includes a threshold probability value for comparing each said recognized substring to said threshold probability value.

20. (Original) The system of claim 18, wherein said statistical NLU model comprises a maximum entropy direct channel model, a source-channel model trained by the expectation maximization algorithm, an n-gram model, a statistical parser, or a word spotter.

21. (Original) The system of claim 18, wherein said statistical NLU model can identify a parse tree corresponding to each said recognized substring within said text input.

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22. (Original) The system of claim 18, each said feature having a weight determined during training of an NLU system.

23. (Currently amended) A machine readable storage, having stored thereon a computer program having a plurality of code sections executable by a machine for causing the machine to perform the steps of:

applying [[a]] at least one statistical natural language understanding (NLU) model to text input for identifying substrings within said text input, said statistical NLU model [[being]] belonging to a group of one or more statistical NLU models embedded within a statistical parser and selected for identifying a particular class of substring; and,

examining said each identified substring using an inventory of queries corresponding to said selected statistical NLU model.

24. (Original) The machine readable storage of claim 23, for causing the machine to perform the additional step of iteratively applying different selected statistical NLU models to said text input.

25. (Currently amended) A machine readable storage, having stored thereon a computer program having a plurality of code sections executable by a machine for causing the machine to perform the steps of:

applying [[a]] at least one statistical natural language understanding (NLU) model to text input for identifying substrings within said text input, said statistical NLU model [[being]] belonging to a group of one or more statistical NLU models included within a statistical parser and selected for identifying a particular class of substring; and,

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examining each said possible substring using one or more features corresponding to said selected statistical NLU model.

26. (Currently amended) The machine readable storage of claim 25, for causing the machine to perform the additional step of iteratively applying different selected [[reusable]] statistical NLU models to said text input.

27. (Original) In a natural language understanding (NLU) system, a direct channel method for determining a meaning for a text input comprising:

applying [[a]] at least one statistical NLU model to a text input, said statistical NLU model belonging to a group of one or more statistical NLU models included within a direct channel model;

identifying one or more substrings within said text input, each said substring corresponding to said [[reusable]] statistical NLU model; and,

determining a meaning for said text input based upon said identified substrings from possible meanings within said statistical NLU model.

28. (Original) The method of claim 27, further comprising:

comparing a probability value corresponding to each said substring to one or more threshold probability values within said statistical NLU model.

29. (Original) The method of claim 27, further comprising iteratively applying different selected statistical NLU models to said text input.

30. (Currently amended) The method of claim 27, wherein said NLU model comprises a maximum entropy direct channel model, a source-channel model trained by

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[[the]] an expectation maximization algorithm, a n-gram model, a statistical parser, or a word spotter.

31. (Original) The method of claim 27 wherein said determining step comprises applying weighted features corresponding to said identified substrings to said text input.

32. (Currently amended) A machine readable storage, having stored thereon a computer program having a plurality of code sections executable by a machine for causing the machine to perform the steps of:

applying a statistical [[NLU]] natural language understanding (NLU) model to a text input, said statistical NLU model belonging to a group of one or more statistical NLU models embedded within a statistical parser;

identifying one or more substrings within said text input, each said substring corresponding to said [[reusable]] statistical NLU model; and,

determining a meaning for said text input based upon said identified substrings from possible meanings within said [reusable] statistical NLU model.

33. (Original) The machine readable storage of claim 32, for causing the machine to perform the additional step of:

comparing a probability value corresponding to each said substring to one or more threshold probability values within said statistical NLU model.

34. (Currently amended) The machine readable storage of claim 32, for causing the machine to perform the additional step of:

iteratively applying different selected [[reusable]] statistical NLU models to said text input.

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35. (Original) The machine readable storage of claim 32, wherein said determining step comprises: applying weighted features corresponding to said identified substrings to said text input.